

Wisconsin Electric Power Company  
Docket No. 5-CE-137  
Exhibit 2.1  
Jeff Knitter  
October, 2009



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Milwaukee, WI 53203  
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Public Service Commission of Wisconsin  
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December 18, 2008

Ms. Sandra J. Paske  
Secretary to the Commission  
Public Service Commission of Wisconsin  
Post Office Box 7854  
Madison, WI 53707-7854

Dear Ms. Paske:

**Supplemental Application of Wisconsin Electric Power Company to Install Selective Catalytic Reduction Facilities and Associated Equipment on Edgewater Unit 5 for Control of Nitrogen Oxide Emissions: PSC Docket No. 5-CE-137**

Pursuant to §196.49, Wis. Stats. and PSC 112, Wis. Adm. Code, Wisconsin Electric Power Company ("Wisconsin Electric" or "the Company"), requests authorization to install selective catalytic reduction ("SCR") nitrogen oxide ("NO<sub>x</sub>") control technology on its ownership portion of Unit 5 (the "Unit") at the Edgewater Power Plant (the "Project"). The total estimated cost of the Company's portion of the Project is approximately \$45 million, including AFUDC.

Edgewater Power Plant is located in Sheboygan County Wisconsin. Wisconsin Power and Light (WPL) is the majority owner (75%) and operator of Unit 5 at the Edgewater Power Plant, with Wisconsin Electric owning 25% of the Unit. The two utilities represent the Applicants in the Certificate of Authority (CA) request filed on November 13, 2008. The Company is making this supplemental CA filing, relative to Wisconsin Electric's ownership of the Unit, which supports the need for the Project.

***Reason for the Project***

Wisconsin Electric proposes to install this control technology on the Unit as part of its commitment to meet environmental requirements related to power plant emissions at a reasonable cost. This Project supports the Company's compliance strategy for meeting its obligations under the Federal 8 Hour Ozone requirements. The Federal 8-Hour Ozone Rule has designated

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Sheboygan County, the location of the Edgewater Power Plant, as a moderate nonattainment area for ozone. The Wisconsin Department of Natural Resources has promulgated reasonably achievable control technology ("RACT") rules for NOx emissions for the moderate nonattainment counties. In addition, if the Clean Air Interstate Rule ("CAIR") remains in effect, or when a similar federal air program replaces CAIR, this Project will support the Company's emission reduction compliance plan. Additional background on the environmental drivers and alternative air emission control devices for this Project are set forth in the Applicants CA Application.

### ***Description and Scope of the Project***

The Project description and scope is provided in the Applicants' CA Application.

### ***Major Permits***

The Project will require an Air Pollution Control Construction Permit ("Air Construction Permit") from WDNR prior to commencement of construction. A permit application will be submitted to WDNR by WPL.

### ***Scheduling and Procurement***

The Project schedule is set forth in the Applicants CA application. The Company respectfully requests Commission approval by November, 2009 in order to meet the Project schedule.

### ***Project Cost and Financing***

Consistent with the project cost estimate set forth in the November 13, 2008 CA filing, Wisconsin Electric's portion of the cost to install the SCR system and related equipment is \$38.5million.

Allowance for funds used during construction (AFUDC) on the \$38.5 million amounts to another \$6.4M, bringing the Company's portion of the total project cost to \$44.9M

<b><u>Capital Cost (\$million)</u></b>	<b><u>Unit 5</u></b>
SCR System	\$38.5
<u>Total Project Cost</u>	<u>\$38.5</u>
AFUDC (Based on 100% of CWIP)	\$6.4
<b>Gross Project Cost (\$million)</b>	<b>\$44.9</b>

The cost of the Project will be met from internal sources and/or from the issuance and sale of securities.

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### ***Effect of the Project on Cost of Operation and Reliability of Service***

Wisconsin Electric believes that the proposed Project is the most advantageous means of discharging its obligation as a public utility. Installation of a SCR on Edgewater Unit 5 will maintain the reliability of the Company's service while significantly reducing nitrogen oxides emitted from the Unit. In addition, the Project will comply with Sections 196.49 and 196.49(3) (b), Wis. Stat., which provide that no project may proceed until the Commission has certified that public convenience and necessity require the project. The Commission may refuse to certify a project if it appears that the completion of the project will do any of the following:

1. Substantially impair the efficiency of the service of the public utility.
2. Provide facilities unreasonably in excess of the probable future requirements.
3. When placed in operation, add to the cost of service without proportionately increasing the value or available quantity of service unless the public utility waives consideration by the Commission, in the fixation of rates, of such consequent increase of cost of service.

### ***Alternatives***

An "Alternative Analysis" to this Project is provided in Section 3.3.2 (Alternative Analysis) of the Applicants Application. Alternatives examined and discussed include installation of other NOx control technologies or early retirement (2012) of Edgewater Unit 5.

In the early retirement alternative, customer needs are served through purchase of replacement energy and capacity. This alternative was analyzed using a spreadsheet method to assess the "control vs. retire" decision. The spreadsheet method evaluates the specific cost/benefit relationship of the Project, while holding the resource supply plan constant. As discussed with the Commission staff this, method is appropriate in this case since the disposition of the 100MW capacity associated with the Company's ownership share does not appreciably change the resource supply plan. The modeling resulted in system costs ( revenue requirements discounted to 2008\$) associated with the "retire" alternative that were over \$308 million higher than the "control" alternative proposed in this filing. Sensitivity analyses performed included fuel cost, load growth, Project capital cost, replacement capacity and energy cost variations and climate change scenarios. Installing the NOx controls on this Unit was the least cost alternative in every analysis compared to early retirement of the Unit.

The complete analysis is included as Appendix A along with a description of the spreadsheet modeling effort.

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If you have any questions concerning this project, please contact Mr. Paul Farron at (414) 221-3958.

Very truly yours,

A handwritten signature in black ink, appearing to read "Roman A. Draba", with a stylized, flowing script.

Roman A. Draba, Vice President  
Regulatory Affairs and Policy

cc: Mr. Robert Norcross  
Mr. Scot Cullen  
Mr. Ken Detmer

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## **APPENDIX A RESULTS OF AND METHODOLOGY FOR “CONTROL VERSUS RETIRE” ANALYSIS EDGEWATER UNIT 5**

### **METHODOLOGY**

#### **GENERAL**

- The spreadsheet methodology compares current operation of the Unit in the MISO Energy Market (Market) with cost streams associated with the cost of emission controls and continued operation of the Unit for the control and retire alternatives over the life of the Unit (until 2045). The annual net revenue requirements were discounted back to 2008 to achieve total discounted revenue requirements for each alternative to identify the most cost-effective approach.

#### **EARLY RETIREMENT**

- In the retire alternative, the 100MW of Edgewater Unit 5 capacity owned by the Company was replaced over the 2012 through 2045 period with purchased capacity at the marginal cost of long-term capacity. Replacement energy was priced at the projected Locational Marginal Price (LMP) for the WEC load zone portion of the Market.
- Marginal cost of capacity and LMP forecasts for the WEC-south load zone of the Market were provided to the Company by Ventyx in September, 2008.
- The cost (fuel, O&M, capital) of operating the Unit from 2008 to 2012 was included with the cost of replacement energy and capacity to develop the discounted revenue requirements associated with the Unit retirement alternative.

#### **CONTROL**

- In the control alternative, fuel costs, non-fuel O&M, ongoing capital and the projected capacity factor for continued operation and capital costs of new emission control equipment were provided by WPL based on EGEAS analysis used to support the Applicants CA filing.
- These costs were used to develop the discounted revenue requirements associated with continued operation, after installation of controls, of the Company's ownership portion of the Unit.
- Revenue streams associated with continued operation of the Unit (capacity and energy) from operating in the Market were not considered in the control alternative.

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## SCENARIOS ANALYZED

Consistent with the EGEAS analysis performed by Alliant to support the Applicants November CA filing, the Company performed high and low retention value and carbon constrained scenarios to test the robustness of the control alternative. The summary matrix of scenarios with corresponding position of project variables (Project capital costs, fuel costs, CO2 emissions costs, replacement energy and capacity costs) is provided below. CO2 emissions costs used in this CA filing are consistent with those used to support the Glacier Hills Wind Project (GHWP) CPCN filing. Ongoing capital, non-fuel variable O&M and non-fuel fixed O&M costs were held at “Base” conditions for the appropriate period of time for all scenarios.

	BASE CASE		HIGH RETENTION		LOW RETENTION		CARBON CONSTRAINED	
	<u>Control</u>	<u>Retire</u>	<u>Control</u>	<u>Retire</u>	<u>Control</u>	<u>Retire</u>	<u>Control</u>	<u>Retire</u>
Project Capital Cost	Base	NA	Minus 10%	NA	plus 20%	NA	Base	NA
Fuel costs	Base	Base	Minus 10%	Minus 10%	plus 10%	plus 10%	Minus 10%	Minus 10%
CO2 emissions Cost	NA	NA	NA	NA	NA	NA	GHWP	GHWP
Replacement Energy	Base	Base	NA	High	NA	Low	NA	High
Replacement Capacity	Base	Base	NA	High	NA	Low	NA	High

## RESULTS

The results of the control and retire modeling for each of the four future scenarios are summarized in the table below. The “delta” shown for each of the scenarios represents the difference between the discounted revenue requirements associated with the control and retire alternatives. The results from the spreadsheet methodology are shown with the results of EGEAS analysis performed by WPL to support the Applicants CA filing. The Base scenario control vs. retire benefit of \$308M increases to about \$347M under the high retention value, reflecting the impacts of lower Project capital costs and lower fuel costs for both the control and retire alternatives, and higher replacement energy and capacity costs under the retire alternative. Conversely, the low retention value scenario (higher Project capital costs, higher fuel costs for both the control and retire alternatives, and low replacement energy and capacity costs under the retire alternative) diminishes the value of adding emission controls to about \$272M. Finally, under the carbon constrained future scenario, conducted with lower fuel costs, projected CO2 emission costs consistent with the CO2 assumptions used in the Wisconsin Electric Glacier Hills CPCN filing, and high replacement energy and capacity costs for the retire alternative, the value of controlling Edgewater Unit 5 was reduced to about \$229M.

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To summarize, in all of these scenarios, installation of the SCR emission controls and operating the Unit to a retirement date of 2045 versus early retirement of the Unit represents a savings to customers. As shown on the table below, these results are consistent with the WPL EGEAS results in relative magnitude and direction given the sensitivities analyzed.

	BASE	HIGH RETENTION VALUE	LOW RETENTION VALUE	CARBON CONSTRAINED FUTURE
	Delta (C/R)	Delta (C/R)	Delta (C/R)	Delta (C/R)
WE \$M	308	346.6	271.8	228.8
WP&L \$M	555	597	428	505

Notes:

C/R: Control vs. retire, with positive values showing value of adding emission controls.

WE costs shown are net present value revenue requirements discounted to 2008\$.

Alliant costs are net present value revenue requirements discounted to 2005\$.